


DOGMI
MINERALS PROGRAM
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May 26, 1989

TO: Wayne Hedberg, Permit Lead

FROM: Scott Johnson, Reclamation Engineer 

RE: Permit Revision Review, Continental Lime, Incorporated, Poison Mountain Quarry and Cricket Mountain Quarry, M/027/006, Millard County, Utah

I have completed my review of the latest submittal of Continental Lime. The review is for the currently operated Poison Mountain Quarry and the proposed Cricket Mountain Quarry. The operator requests the following reclamation variances:

- 1) Waste pile slope,
- 2) Pit highwalls, and
- 3) Roads and pads.

R613-004-106. Operation Plan

The operator has indicated in the surety estimate that all reclamation will occur at the end of the mine life. If some of the reclamation work were performed concurrently with production, the surety liability could be reduced. Although the operator mentions this practice, an adequate time table has not been included in the revision.

R613-004-107. Operation Practices

The operator will construct berms at the end of the mine life if the Division approves the highwall variance. Upon approval of this variance, I suggest the operator immediately construct the berms on finished highwalls. This will make the area safe and reduce the surety requirement. On the other hand, if the highwall variance is denied, the operator should begin reducing the finished highwalls to a maximum 45 degrees.

R613-004-109. Impact Assessment

The operator has indicated that the existing highwalls are stable and in competent strata. Additionally, the surrounding natural cliffs are steeper and higher than the proposed highwalls.

R613-004-111. Reclamation Practices

The operator has agreed to construct adequate berms above the highwalls to prevent accidental access into the pits. I propose we accept this practice and allow the highwall variance. As the attached map indicates, the average pit highwalls range from 58 to 82 degrees steep. The working slopes, however, range from 22 degrees in the lowest pit to 55 degrees in the topmost pit. I do not think the State will gain any useable ground by requiring the operator to maintain a 45 degree highwall in competent material.

The operator has indicated a request to leave the waste pile at the angle of repose. Holland Shepherd indicated in his memo on May 18, 1989, that the repose angle of 37 degrees will not support vegetation. For this reason, and the fact that the waste material has a relatively low seismic velocity, I concur with the position that the Division deny this variance. I have included in the reclamation surety the cost for regrading the waste dump to a 3h:1v slope.

The operator has indicated a request to leave the roads from the quarry to the plant intact. The land owner, BLM, has agreed to this request.

R613-004-112. Variance

The operator has requested the following three variances:

1) Waste pile slope

I concur with Holland that we deny this variance request. The low seismic velocity of the material will allow the operator to regrade this material fairly easily.

2) Pit highwalls

I think we should allow the operator this variance with the following provision:

If, during the life-of-mine or reclamation period, the highwalls show signs of toe failure, slope failure, or block flow, Continental Lime agrees to correct the problem by reducing the slope of the highwall to a maximum 45 degree angle in the problem area. These corrected areas are subject to revegetation.

3) Roads and pads

I think we should allow the operator this variance. Roads having a legitimate post-mine land use should remain.

**Reclamation Estimate for Continental Lime, Incorporated
Poison Mountain Quarry and Cricket Mountain Quarry M/027/006**

Prepared By
Utah State Division of Oil, Gas and Mining
May 25, 1989

Description	Quantity	Unit	\$/Unit	Total Cost (\$)
Crusher Site Reclamation				
Demolish and Dispose of Buildings		Lump Sum		5,000
Remove Trash	13	Acres	100	1,300
Grade for Uniformity	13	Acres	430	5,590
Cover with 6" Material (minus 1/2")	10,500	Cubic Yards	0.65	6,830
Revegetate	13	Acres	447	5,810
Subtotal				24,530
Waste Dump Reclamation				
Remove Trash	18	Acres	100	1,800
Grade to a 3h:1v Slope	89,000	Cubic Yards	0.20	17,800
Revegetate	20	Acres	447	8,940
Subtotal				28,540
Poison Mountain Quarry (A thru K) Reclamation				
Remove Trash	15	Acres	100	1,500
Construct Berms on Highwalls	1,900	Cubic Yards	0.80	1,520
Rip Benches to a 12" Depth	15	Acres	275	4,130
Cover with 6" Material (minus 1/2")	11,725	Cubic Yards	0.65	7,620
Revegetate	16	Acres	447	7,150
Subtotal				21,920
Cricket Mountain Quarry (1989 thru 1999) Reclamation				
Remove Trash	36	Acres	100	3,600
Construct Berms on Highwalls	18,200	Cubic Yards	0.80	14,560
Rip Benches to a 12" Depth	36	Acres	275	9,900
Cover with 6" Material (minus 1/2")	28,850	Cubic Yards	0.65	18,750
Revegetate	37	Acres	447	16,540
Subtotal				63,350
Totals				138,340
Add Contingency (10%)				13,830
TOTAL RECLAMATION COST (1989 Dollars)				152,170
TOTAL RECLAMATION COST (1999 Dollars) @ 1.93% Annual Inflation				184,000

Reclamation Estimate for Continental Lime, Incorporated
Poison Mountain Quarry and Cricket Mountain Quarry M/027/006

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Cost Parameters Used

D-8 Dozer (O&O)	160	\$/hour
769C Off-Highway 40 Ton Truck (O&O)	115	\$/hour
988B Wheel Loader (O&O)	165	\$/hour
Labor Only	24	\$/hour
Trash Removal	100	\$/acre
Farm Tractor (O&O)	67	\$/hour
Speed	4	mph
Width of Pass	6	feet

Revegetation Cost per Acre	Quantity	Unit	\$/Unit	Total Cost (\$)
Bare Costs				
Fertilizer (18-46-0)	100	Pounds	0.25	25
Seed Mix	20	Pounds	9	180
Native Hay Mulch	2	Tons	50	100

Subtotal				305
Application Costs				
Native Hay Mulch (spread by hand)	3.0	Hours	24	72
Native Hay Mulch (disc into ground)	0.3	Hours	67	23
Fertilizer (broadcast by hand)	0.5	Hours	24	12
Seed Mix (drilled)	0.5	Hours	24	12
Scarify (tractor with chain)	0.3	Hours	67	23

Subtotal				142
Total Revegetation Cost per Acre				447

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Continental Lime
May 26, 1989

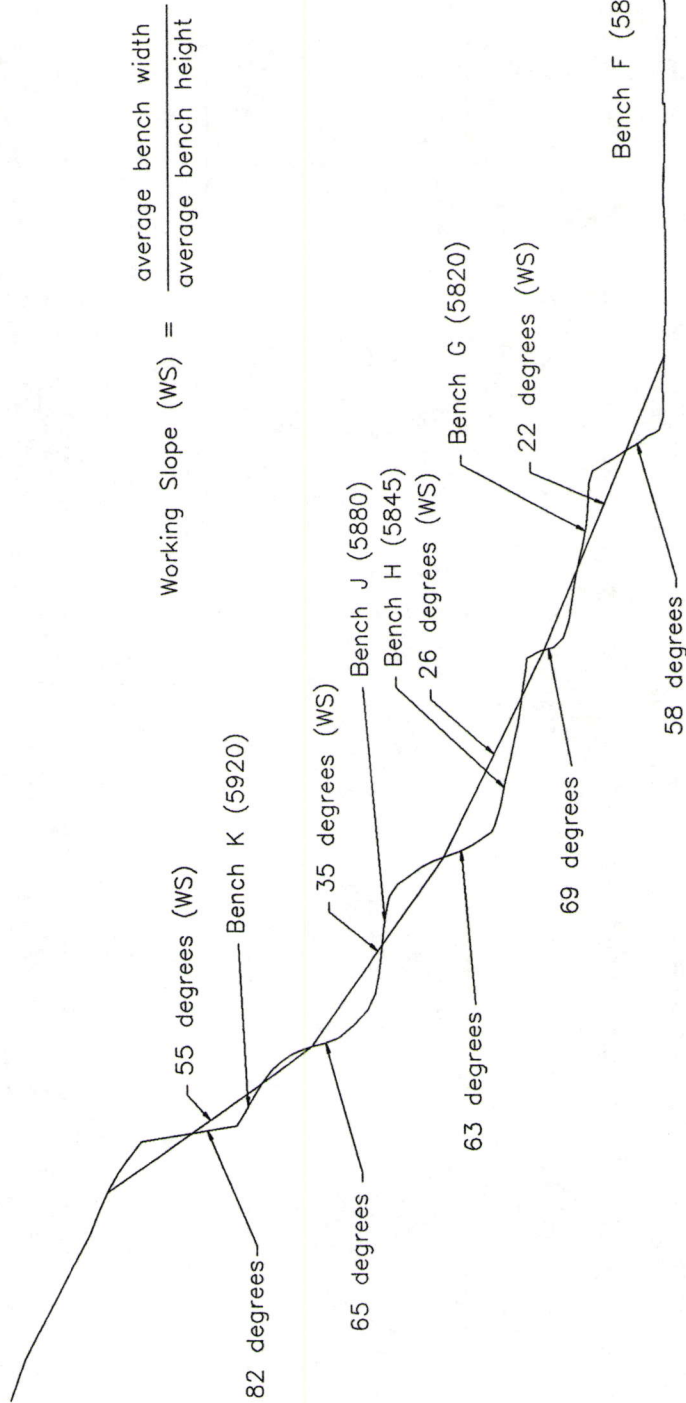
R613-004-113. Surety

I have reviewed the operators surety estimate. There were some areas that the operator estimated too low. Attached is my estimate that reflects what I feel are better estimates of the required work along with the addition of the regrading of the waste pile. The total reclamation cost, in 1999 dollars (at the request of Continental Lime) is \$184,000. We currently have an insurance bond for the reclamation of this property in the amount of \$38,020.

If you feel that the highwall variance should not be granted, the surety estimate will increase. In this case, the operator will need to provide cost estimates for the highwall reduction.

jb
cc: Holland Shepherd
MN60/13-15

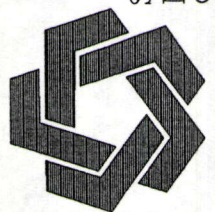
Typical Cross Section of Multiple Bench Pits



Map Compiled May 25, 1989

Continental Lime, Incorporated
Poison Mountain Quarry

M/027/006
Millard County, Utah



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining